

REMARKS

In response to the non-final office action of April 6, 2005, applicant asks that all claims be allowed in view of the following remarks. Claims 1-39 are pending, of which claims 1, 13 and 25 are independent.

Rejection under Section 112, Second Paragraph

Claims 1-39 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite. The Office action indicates that there is no possible connection between links and nodes that satisfies the claim language of the independent claims 1, 13 and 25. *See* Office action of April 6, 2005 at page 2, lines 6-23. More particularly, the Office action asserts that there is no connection between links and nodes that satisfies “at least two of the directed links are associated with two nodes that are the same such that (1) a starting node of a first link of the at least two directed links is a same node as an ending node of a second link of the at least two directed links and (2) an ending node of the first link of the at least two directed links is the same node as a starting node of the second link of the at least two directed links,” as recited in claim 1. *See* Office action of April 6, 2005 at page 2, lines 9-15. Applicant respectfully disagrees and traverses the rejection because each of the independent claims 1, 13 and 25 articulates clear boundaries in satisfaction of the requirement under 35 U.S.C. 112, 2nd paragraph for definiteness.

In particular, using an example from the specification, a directed link BC and a directed link CB satisfy the limitation of claim 1, without any ambiguity or confusion. *See* Specification at page 9, lines 1-3 (describing FIG. 3 and stating “[f]or example, a line between two nodes B and C includes two directed links, namely a directed link from B to C that may be referred to as directed link BC, and another directed link from C to B that may be referred to as directed link CB”). Using this example, and assuming *arguendo* that the directed link BC is the first link with starting node B and ending node C and the directed link CB is the second link with starting node C and ending node B, the starting node B of the first link BC is the same node as the ending node B of the second link CB, and the ending node C of the first link BC is the same node as the starting node C of the second link CB. As such, the claim language is satisfied without ambiguity or confusion.

Claims 13 and 25 each recite similar features in the context of a computer-readable medium and a system, respectively. Claims 2-12, 14-24, and 26-39 depend from claims 1, 13 or 25, respectively. Hence, the rejection under § 112, second paragraph is improper. Applicant respectfully requests reconsideration and withdrawal of the rejection of independent claims 1, 13 and 25 and claims 2-12, 14-24 and 26-39 that depend directly or indirectly from one of the claims 1, 13 or 25, respectively.

Rejection under Section 102

Claims 1-9, 11, 13-21, 23, 25-33, 35, 37, 38 and 39 were rejected under 35 U.S.C. § 102(b) as being anticipated by Fujita (U.S. Patent No. 5,513,110). Applicant requests reconsideration and withdrawal of this rejection because Fujita does not describe or suggest disclose a network of roads in which at least two of the directed links are associated with two nodes that are the same such that (1) a starting node of a first link of the at least two directed links is a same node as an ending node of a second link of the at least two directed links and (2) an ending node of the first link of the at least two directed links is the same node as a starting node of the second link of the at least two directed link.

Claim 1 recites a method of determining a preferred route using a computer-implemented routing system. Claim 1 recites, *inter alia*, using a routing system to access an origin and a destination in a routing graph representing a network of roads that includes two or more nodes and two or more directed links. Each directed link is associated with a direction of travel from a starting node to an ending node and represents a road. Each node represents an intersection that includes at least one road. At least two of the directed links are associated with two nodes that are the same such that (1) a starting node of a first link of the at least two directed links is a same node as an ending node of a second link of the at least two directed links and (2) an ending node of the first link of the at least two directed links is the same node as a starting node of the second link of the at least two directed links. The method also includes using the routing system to determine a preferred route from the origin to the destination by using at least one directed link, and communicating the preferred route from the routing system to a user system.

a. Applicant's Response to Office Action's Response to Arguments

The Office action notes that applicant's previously submitted arguments were directed to claims 1-39, which have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite, and that the examiner has applied art to the claims as best understood. *See* Office action of April 6, 2005 at page 14, lines 12-13. The rejection included the same citations to Fujita and reasoning for the independent claims that was provided in the previous Office action of October 7, 2004. Applicant notes that the rejection does not explicitly address the limitation reciting at least two of the directed links are associated with two nodes that are the same such that (1) a starting node of a first link of the at least two directed links is a same node as an ending node of a second link of the at least two directed links and (2) an ending node of the first link of the at least two directed links is the same node as a starting node of the second link of the at least two directed links, as discussed above with respect to the indefinite rejection of claims 1-39.¹

Therefore, having provided remarks above with respect to the rejection under 35 U.S.C. § 112, second paragraph, applicant again solicits response to arguments presented in response to the previous Office action of October 7, 2004, which are reproduced below for convenient reference.²

b. Reproduction of Applicant's Arguments Previously Presented in January 7, 2005 Response to Office action of October 7, 2004

For convenient reference, the following is a reproduction of arguments presented in the January 7, 2005 response to the Office action of October 7, 2004:

Fujita is directed to an in-vehicle navigation system that searches for a recommended path toward a final destination and also indicates the current position and *traveling direction of the vehicle* along the recommended path. *See* Fujita at col. 1, lines 7-11. In particular, the navigation system includes a hierarchy of roads that are sequentially searched by the navigation system to find a path from a departure point to a destination point. *See* Fujita at col. 2, lines 50-

¹ The rejection of claims 1, 13 and 25 included the claim language without citation to any portion of Fujita. *See* Office action of April 6, 2005 at page 4, lines 1-5 (discussing claim 1), page 6, lines 11-15 (discussing claim 13), and page 9, lines 3-7 (discussing claim 25).

² Claims 37-39 were not considered in the Office action of October 6, 2004 and have been added to the reproduced remarks for completeness.

65. Fujita discloses finding a road in a higher level of the hierarchy that is nearest to a particular position in a lower level of the hierarchy. *See* Fujita at col. 6, line 29 to col. 7, line 15 and col. 11, lines 43-59. This is done to limit the number of nodes to be searched. *See* Fujita at col. 6, lines 17-26. In particular, the hierarchy of roads disclosed in Fujita includes “network data consisting of nodes showing intersections and links showing the relationship between the intersections.” Fujita at col. 4, lines 63-67. A “node number is assigned to each of the nodes, which permits the particular node to be uniquely identified. Even when the connection between the nodes bridges the adjacent management areas, the node numbers of the connecting nodes are registered in the corresponding links.” Fujita at col. 5, lines 2-7.

According to the plain text of Fujita, a node shows an intersection and a link shows the relationship between two intersections. A link in Fujita connects two intersections and is therefore non-directional (or bi-directional), such that the link connects one intersection to the other intersection in each travel direction between the intersections. Thus, the link in Fujita is not a directed link that is associated with *a direction of travel from a starting node to an ending node*, as recited in claim 1. Moreover, Fujita does not disclose a network of roads in which at least two of the directed links are associated with two nodes that are the same such that (1) a starting node of a first link of the at least two directed links is a same node as an ending node of a second link of the at least two directed links and (2) an ending node of the first link of the at least two directed links is the same node as a starting node of the second link of the at least two directed link, as recited in claim 1.

Further, while Fujita discusses a direction of travel, Fujita merely uses this direction of travel as reference information in navigating Fujita's bi-directional links. For example, Fujita, in FIGS. 11A-11C, discloses a displayed network of roads in which *the direction of travel of the vehicle toward the destination point* is shown. *See* Fujita at FIGS. 11A-11C and col. 10, lines 21-28 (stating “[i]f the current position is the road of the uppermost level, a path connecting with an intersection which is nearest the destination point *in the traveling direction of the vehicle* is offered as the temporary guidance suggestion to the driver after the guidance request has been made. The guidance suggest[ion] on this occasion can be given in such a way that a display as shown in FIG. 11A or FIG. 11B is presented on the display means 106.”). Fujita also discloses in FIG. 13 “a diagram showing the situation of the determination of a search starting point in a

higher hierarchy” in which “one of the nodes is selected as a search starting point at the higher level on the basis of the direction of the opposite search starting point (on the side of the destination point as opposed to the side of the point of departure) and the *traveling direction of the vehicle*.” See Fujita at col. 3, lines 66-67 and col. 11, lines 46-53 (emphasis added). See also Fujita at FIG. 13 (showing text describing the depicted arrow as indicating that the arrow represents the “DIRECTION OF DESTINATION POINT”) and col. 11, lines 54-59 (stating “[i]n the case of FIG. 13, among the intersections between the roads of the higher level, the *intersection which is near the direction of the destination point* and which is included within a predetermined angular extent *from the traveling direction* is set as the search starting point at the higher level.”).

Thus, the direction of travel disclosed in Fujita is a direction of travel that is an attribute of the vehicle in which the navigation system of Fujita resides and is not a direction of travel that is permitted on a road. See Fujita at col. 2, line 57; col. 10, line 24; col. 11, line 53; and col. 13, line 65 (all describing “a traveling direction of a vehicle”). Assuming for the sake of argument that a road of Fujita corresponds to a link in claim 1, Fujita merely discloses a link and necessarily does not disclose a directed link being associated with a direction of travel from a starting node to an ending node.

Moreover, Fujita discloses link data that represents connections between intersections but does not disclose that a direction of travel is associated with link data. See Fujita at col. 12, line 49. Nor does Fujita disclose a direction of travel attribute that is associated with road data. See Fujita at col. 12, lines 44-59 and col. 13, lines 50-65. Because Fujita does not describe or suggest a directed link, Fujita necessarily cannot disclose using a directed link to determine a preferred route from the origin to the destination, as recited in claim 1.

More particularly, the Office Action cites column 10, lines 11-60, and FIGS. 11 and 13 as showing a directed link associated with a direction of travel. See the Office Action of October 7, 2004 at page 2. The cited portions of Fujita, however, describe only a direction of travel of a vehicle, and do not describe or suggest a direction of travel associated with the road itself.

In particular, FIGS. 11A-11C of Fujita illustrate examples of a display of an on-board navigation system that show a suggested route and a traveling direction of the vehicle. See Fujita at FIGS. 11A-11C and col. 10, lines 25-28 (stating “[t]he guidance suggest[ion] on this occasion

can be given in such a way that a display as shown in FIG. 11A or FIG. 11B is presented on the display means 106.”). Thus, FIGS. 11A-11C depict a presentation of a network of roads and a direction of travel of the vehicle. As such, the direction of travel is an attribute of the vehicle and is not attribute of a road in the displayed network of roads. Accordingly, the network of roads and direction of travel of the vehicle in FIGS. 11A-11C does not constitute a routing graph that represents a network of roads including two or more nodes and two or more directed links, with at least one directed link being associated with a direction of travel from a starting node to an ending node, as recited in claim 1. Moreover, FIGS. 11A-11C disclose only how the results of determining a route are displayed and, hence, FIGS. 11A-11C do not disclose using at least one directed link to determine a preferred route from the origin to the destination, as recited in claim 1.

With respect to column 10, lines 11-60, Fujita discloses determining a route “by utilizing the information of the current position of the vehicle” to search for “a path extending to the road of a higher hierarchy.” Fujita at col. 10, lines 12-14. Fujita also discloses using the traveling direction of the vehicle to search for “a path connecting with an intersection which is nearest the destination point” when the current position of the vehicle is the road of the uppermost level of the hierarchy. Fujita at col. 10, lines 21-25. *See also* Fujita at col. 11, line 46-53 (describing the use of the traveling direction of the vehicle to select a node as a starting point of searching at a higher level of the hierarchy). As such, the direction of travel used in Fujita’s system is an attribute of the vehicle and is not attribute of a road. Accordingly, the direction of travel disclosed in column 10, lines 11-60 does not constitute a direction of travel from a starting node to an ending node, as recited in claim 1.

Moreover, Fujita, in column 10, lines 11-34 and column 11, lines 43-63, merely discloses using information about the current position of the vehicle and the traveling direction of the vehicle to search for a path. Thus, this portion of Fujita does not disclose using at least one directed link to determine a preferred route from the origin to the destination, as recited in claim 1.

With respect to FIG. 13, Fujita discloses “a diagram showing the situation of the determination of a search starting point in a higher hierarchy” in which “one of the nodes is selected as a search starting point at the higher level on the basis of the direction of the opposite

search starting point (on the side of the destination point as opposed to the side of the point of departure) and the traveling direction of the vehicle.” Fujita at col. 3, lines 66-67 and col. 11, lines 46-53. *See also* Fujita at FIG. 13 (showing text describing the depicted arrow as indicating that the arrow represents the “DIRECTION OF DESTINATION POINT”) and column 11, lines 54-59 (stating “[i]n the case of FIG. 13, among the intersections between the roads of the higher level, the intersection which is near the direction of the destination point and which is included within a predetermined angular extent from the traveling direction is set as the search starting point at the higher level.”). FIG. 13 discloses the direction of the destination and does not describe or suggest a direction of travel from a starting node to an ending node.

Moreover, Fujita in FIG. 13 and column 11, lines 46-53 describing FIG. 13 does not disclose using at least one directed link to determine a preferred route from the origin to the destination. Rather, Fujita merely discloses using information about the current position of the vehicle and the traveling direction of the vehicle to search for a path. Thus, Fujita in FIG. 13 does not disclose using at least one directed link to determine a preferred route from the origin to the destination, as recited in claim 1.

Thus, Fujita does not describe or suggest using a routing graph representing a network of roads in which a directed link of the routing graph is associated with a direction of travel along the directed link from a starting node to an ending node. Nor does Fujita disclose a network of roads in which at least two of the directed links are associated with two nodes that are the same such that (1) a starting node of a first link of the at least two directed links is a same node as an ending node of a second link of the at least two directed links and (2) an ending node of the first link of the at least two directed links is the same node as a starting node of the second link of the at least two directed link, as recited in claim 1. Neither does Fujita describe or suggest using the routing system to determine a preferred route from the origin to the destination by using at least one directed link, as recited in independent claim 1.

For at least these reasons, applicant requests withdrawal of the rejection of independent claim 1 and its dependent claims 2-9, 11 and 37.

Similarly to independent claim 1, independent claims 13 and 25 each recite a similar feature of using a routing system to access an origin and a destination in a routing graph representing a network of roads including two or more nodes and two or more directed links

where each directed link is associated with a direction of travel from a starting node to an ending node and at least two of the directed links are associated with two nodes that are the same such that (1) a starting node of a first link of the at least two directed links is a same node as an ending node of a second link of the at least two directed links and (2) an ending node of the first link of the at least two directed links is the same node as a starting node of the second link of the at least two directed link. Independent claim 13 recites these features in the context of a computer-readable medium, while independent claim 25 recites these features in the context of a system.

Accordingly, for the reasons discussed above with respect to claim 1, applicant requests withdrawal of the rejection of independent claims 13 and 25 and their dependent claims 14-21, 23, 26-33, 35, 38 and 39.

Rejection under Section 103

Claims 10, 12, 22, 24, 34 and 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita in view of Ohmura (2002/0077745). *See* Office action of April 6, 2005 at page 11, lines 18-19. Ohmura discloses a distribution system for mapping information. *See* Ohmura at Abstract. Ohmura does not remedy the failure of Fujita to disclose the subject matter of claims 1, 13 and 25.

Therefore, neither Fujita, Ohmura, nor the combination of the two describe or suggest the subject matter of claims 1, 13 and 25. For at least these reasons, applicant requests reconsideration and withdrawal of this rejection in view of the reasons described above with respect to independent claims 1, 13 and 25, from which claims 10, 12, 22, 24, 34 and 36 respectively depend.

Conclusion

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this reply should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this reply, and the

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Page : 10 of 10

Attorney's Docket No.: 06975-318002

amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

No fee is believed due. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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